ABSTRACT

THE EFFECT OF HPMC K4M CONCENTRATION ON THE PHYSICAL CHARACTERISTIC AND *Lactobacillus casei* FNCC 0090 ENCAPSULATION EFFICIENCY IN MICROPARTICLE WITH L-TYPE METHACRYLIC ACID COPOLYMER
(By spray drying method)

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Microencapsulation is the process of encapsulating solid, liquid, or gaseous material with a polymer aimed to protect the active ingredients from degradation due to pH also to obtain a pulsatile release. One of the active ingredients that requires a microencapsulation process is a probiotic, which lacks the ability to survive in an acidic environment such as the gut, while intended for intestinal release. This study was aimed to determine the effect of HPMC K4M concentration (0.2%, 0.3%, and 0.4%) in combination of L-type metacrylic acid copolymers to physical characteristics and encapsulation efficiency of *Lactobacillus casei* in microparticle, made by spray drying method. The test results of probiotic microparticle physical characteristics could be seen in each formula. The Increasing of HPMC K4M rate in 0,2% to 0,3% does not have influence on particle size, however in concentration of 0,3% to 0,4% may cause a decrease on particle size. The observation of Scanning Electron Microscopy (SEM) shows that microparticles produced have surfaces with many cavity with a shape that tends to be non-spherical. There is no effect of increased HPMC K4M concentration on moisture content of microparticle and still yields high moisture content. The results also show that Lactobacilus casei encapsulation efficiency increases in microparticle by being added HPMC K4M in polimer combination compared to without combination, nevertheless the increased concentration of HPMC K4M has no effect in Lactobacilus Casei encapsulation efficiency in microparticle.

Keywords: Microencapsulation, Probiotic, HPMC K4M, Methacrylic acid copolymer L type, *Lactobacillus casei*, Spray drying, Physical characteristic, Encapsulation efficiency